# Panel 12: Smart and Grid-Interactive Buildings

**PANEL LEADERS: Therese Peffer, CA Instititute for Energy & Environment and Marco Pritoni, Lawrence Berkeley National Laboratory**

| DATE | SESSION | TITLE | LEAD AUTHOR, ORGANIZATION |
|---|---|---|---|
| Mon 8/5 | **Session 1**<br>**8:30 - 10:00 am**<br>Large Commercial Demand Flexibility | *The cost of HVAC demand response: Using experimental data to track down the causes of inefficiency in sub-hourly HVAC load shifting* | Austin Lin,<br>University of Michigan |
| | | *Optimal control strategies for multiple cooling towers for an existing building* | Jin-Hong Kim,<br>Seoul National University |
| | | *Analyzing The Impact Of Energy Efficient ASHRAE Guideline 36 Control Sequences On Demand Flexibility Potential Of Commercial Buildings: A Multi-Region Analysis* | Weiping Huang,<br>Lawrence Berkeley National Laboratory |
| | **Session 2**<br>**10:30 am - 12:00 pm**<br>Powering the Future: Small commercial demand flexibility, fuel switching RTUs, and MPC | *Frozen Freedom: Unleashing Grocery Store Demand Flexibility* | Sarah Stubbs, U.S. Department of Energy |
| | | *Drop-in Decarbonization with Smart Fuel-Switching RTUs* | Jason LaFleur, GTI Energy |
| | | *Practical challenges and impacts of low-cost model predictive control (MPC) for grid-interactive small and medium commercial buildings.* | Sang Woo Ham,<br>Lawrence Berkeley National Laboratory |
| Tues 8/6 | **Session 1**<br>**8:30 - 10:00 am**<br>Solar Sparks: Utility Innovation, Cost-Effective Solar and Demand Response with Battery Energy Storage Solutions (BESS) | *The best of both worlds: Combined thermal and battery storage for widespread building decarbonization* | Sven Mumme,<br>U.S. Department of Energy |
| | | *A utility works to incentivize customers to install solar and dispatchable storage in their homes.* | Chelsea Liddell,<br>DNV |
| | | *Supercharging Demand Response Performance with Residential Batteries* | Carly Olig,<br>Guidehouse |
| | **Session 2**<br>**10:30 am - 12:00 pm**<br>"In the Heat of the Moment": Recent Innovations on Thermal Energy Storage | *Equity, Electrification, and Time of Use (TOU) rates: Coupling Thermal Energy Storage with Heat Pumps for Improved Operational Efficiency* | Sara Sultan,<br>Optimal Energy Group at NV5 |
| | | *Demystifying Thermal Energy Storage: Evaluating The Tradeoffs Between Storage Sizing And Control Algorithm Complexity For Demand Flexibility* | Armando Casillas,<br>Lawrence Berkeley National Laboratory |
| | | *Advancements in combi heat pumps with thermal storage – a cornerstone solution for equitable and efficient grid-interactive electrification in cold climates* | Jonathan Woolley,<br>Emanant Systems |

## Panel 12: Smart and Grid-Interactive Buildings

**PANEL LEADERS: Therese Peffer, CA Instititute for Energy & Environment and Marco Pritoni, Lawrence Berkeley National Laboratory**

| DATE | SESSION | TITLE | LEAD AUTHOR, ORGANIZATION |
|---|---|---|---|
| Wed 8/7 | **Session 1**<br>**8:30 - 10:00 am**<br><br>I'm Flexible When I'm Under Pressure: Heat Pump Water Heater and Demand Flexibility | *From One-Shift Wonder to Multi-Shift Maestro: Model Predictive Control for Smart Operation of Heat Pump Water Heaters* | Caton Mande,<br>UC Davis Western Cooling Efficiency Center |
| | | *Grid-interactive Load Flexibility Control of Multifamily Heat Pump Water Heater Systems* | Greg Pfotenhauer,<br>Artemisia Energy |
| | | *Grid-connected heat pump water heater benefits for low-income households in the Southeastern United States* | Daniela Urigwe,<br>Energy Solutions |
| | **Session 2**<br>**10:30 am - 12:00 pm**<br><br>Customers and Stakeholders: colors, apps and standards in engaging load flexibility | *SCE Flick Power Study: Pre-Attentive Color Schemes to Enhance Customer Responsiveness to Time-of-Use Electric Rates* | Andre Ramirez,<br>Flick Power |
| | | *Introducing SG communication through telematics-based applications* | Abigail Braun, ADM Associates |
| | | *Stakeholder perspectives on the role of standards in establishing a load flexible ecosystem* | Sarah Outcault,<br>UC Davis Energy and Efficiency Institute |
| Thurs 8/8 | **Session 1**<br>**8:30 - 10:00 am**<br><br>Smart Strategies: Illuminating Demand Flexibility and Stakeholder Insights in Grid-Interactive Ecosystems | *The state of demand flexibility programs and rates and their role in managing peak demand* | Sean Murphy,<br>Lawrence Berkeley National Laboratory |
| | | *Get Smart: The Business Case for Grid-Interactive, Efficient Buildings* | Lian Plass, UC Berkeley |
| | | *Assessing Customer Experience and Business Models around Price-to-Device Communication and Smart Control Pathways in CalFlexHub* | Jingjing Liu,<br>Lawrence Berkeley National Laboratory |
| | **Session 2**<br>**10:30 am - 12:00 pm**<br><br>Blueprints for Tomorrow: Orchestrating Resilience an Efficiency in Connected Communities | *Architecting the Future: Exploring Coordinated Control Frameworks for Connected Communities* | Lazlo Paul,<br>Lawrence Berkeley National Laboratory |
| | | *Harmonized Resilience at Roosevelt Village: How Futuristic Grid-Interactivity and Resilience Come Together in Senior Affordable Housing* | Brett Webster,<br>RMI |
| | | *Techno-Economic Analysis of High Efficiency and Connected DERs for Connected Communities – A Case Study in Seattle, WA* | Siva Sankaranarayanan,<br>EPRI |

| Panel 12: Smart and Grid-Interactive Buildings<br>PANEL LEADERS: Therese Peffer, CA Instititute for Energy & Environment and Marco Pritoni, Lawrence Berkeley National Laboratory | | | |
|---|---|---|---|
| **DATE** | **SESSION** | **TITLE** | **LEAD AUTHOR, ORGANIZATION** |
| **Fri 8/9** | **Session 1**<br>**8:30 - 10:00 am**<br><br>Smart Thermostats Again? Questions and Solutions for this Established Technology | *Implementing Load Flexibility Programs For Low Income Households to Help Alleviate Energy Burden* | Adam Farabaugh,<br>Uplight |
| | | *Smart Thermostats and Heat Pumps: Incompatible? Or just need counseling?* | Therese Peffer,<br>California Institute for Energy and Environment |
| | | *Utilities and the Future: A west-coast utility invests in an internal Virtual Power Plant platform and partners for rapid-turnaround evaluation of programs* | Tom Smith,<br>PSE |
| | **Session 2**<br>**10:30 am - 12:00 pm**<br><br>Semantics Unleashed: Lighting, BRICK and Plug Loads, and Building Automation Futures | *Digitization, Standards and Interoperability: Lighting as a Team Player* | Carol Jones,<br>DALI Alliance |
| | | *BRICK Schema Standardized Plug Load Control Strategies for Load Reduction and Demand Response* | Keaton Chia,<br>University of California San Diego |
| | | *Digital and Interoperable: the future of building automation is on the horizon. What's in it for me?* | Marco Pritoni,<br>Lawrence Berkeley National Laboratory |